



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW308C BS 1289 BYPASS RATIO (-): 4.1
 UNIQUE ID NUMBER: 03P14FW194 PRESSURE RATIO π_{c0} (-): 21.1
 COMBUSTOR: TALON II
 ENGINE TYPE: MTF RATED OUTPUT F_{00} (kN): 31.2

REGULATORY DATA

CHARACTERISTIC VALUES:	LTO_{mass}/F_{00} (mg/kN)	LTO_{num}/F_{00} (particles/kN)	NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$)
LTO/F_{00} AND MAX $nvPM_{mass}$	2756.8	1.57E+16	4096
AS % OF CAEP/10 LIMIT	-	-	30.3
AS % OF CAEP/11 LIMIT (InP)	69.3	67.5	
AS % OF CAEP/11 LIMIT (NT)			

MEASURED DATA

MODE	POWER SETTING (% F_{00})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES*		NVPM MASS CONCENTRATION PEAK $nvPM_{mass}$ ($\mu\text{g}/\text{m}^3$)
				EI_{mass} (mg/kg)	EI_{num} (particles/kg)	
TAKE-OFF	100	0.7	0.361	597.9	1.76E+15	
CLIMB OUT	85	2.2	0.299	545.2	1.98E+15	
APPROACH	30	4.0	0.110	97.2	1.62E+15	
IDLE	7	26.0	0.045	403.7	2.87E+15	
LTO TOTAL (kg, mg, number of particles)			152	61772	3.51E+17	-
NUMBER OF ENGINES				1	1	1
NUMBER OF TESTS				3	3	3
AVERAGE LTO/F_{00} VALUES (mg/kN, particles/kN)				1983.3	1.13E+16	-
MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$)				597.9	2.87E+15	3182

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

MODE	POWER SETTING (% F_{00})	CORRECTED EMISSIONS INDICES	
		$EI_{mass,SL}$ (mg/kg)	$EI_{num,SL}$ (particles/kg)
TAKE-OFF	100	693.5	3.80E+15
CLIMB OUT	85	643.3	4.47E+15
APPROACH	30	130.3	5.95E+15
IDLE	7	496.5	7.72E+15

AMBIENT CONDITIONS

	From	To	FUEL	
BAROMETER (kPa)	99.9	100.3	HEAT OF COMBUSTION (MJ/kg)	43.06
TEMPERATURE (K)	290.4	296.6	HYDROGEN CONTENT (%mass)	13.46
HUMIDITY (kg water/kg dry air)	0.0100	0.0108	AROMATICS CONTENT (%vol)	21.7
			NAPHTHALENE CONTENT (%vol)	0.77
			SULPHUR CONTENT (ppm by mass)	27

MANUFACTURER: Pratt & Whitney Canada
 TEST ORGANIZATION: Pratt & Whitney Canada
 TEST LOCATION: Mississauga, Ontario, Canada
 TEST DATES: 06/10/2016

REMARKS

1. Data revised to correct calculation errors
2. Data acquired using procedures and systems prescribed in Annex 16 Volume II, Amd. 9
3. Thermophoretic correction applied as described in Annex 16 Volume II, Amd. 9, Appendix 7, Section 6.2.1
4. Data corrected for fuel hydrogen content according to CAEP11.WP91 App.A
5. Export Classification: Technical Data: Yes / ECL: NSR / ECCN: N/A / P-ECCN: 9E991
6. Data reported in ER9043 Part II Rev. C